REMARKS

The Office action dated October 5, 2007, and prior art cited therein have been received and carefully reviewed.

The objection to the drawings is obviated by appropriate amendment. Legends for rectangular boxes depicted in Fig. 7 have been provided in the attached Replacement Sheet. It is believed that the conventional features disclosed in the description and claims, where their detailed illustration is not essential for a proper understanding of the invention, are illustrated in the drawing in the form of a graphical drawing symbol or a labeled representation, as required by 37 C.F.R. 1.83.

Accordingly, favorable reconsideration and withdrawal of the objection to the drawings is respectfully urged.

Claim 1 has been amended to include the limitation that the main magnetic field is a *spatially* substantially homogenous magnetic field, and has a time-dependent progression. Support for these modifications can be found, inter alia, on page 8, lines 18-20, and page 13, lines 30-32.

Claim 2 has been amended to include the limitation that the pulse of the main magnetic field is generated using an *air*

core coil. Support for this modification can be found on page 3, lines 26-29.

Claim 17 has been amended to include the limitation that the main field coil generates a *spatially* substantially homogenous magnetic field.

Claim 18 has been amended to include the limitation that the main field coil is an *air core* coil.

The rejection of claims 1-32 under 35 U.S.C. 102(b) as being anticipated by Laukien (US 3,774,103) is obviated by appropriate amendment.

It is considered that the Laukien reference does not teach or suggest each and every element of the amended claims.

Laukien discloses a spin resonance spectrometer and a method of recording spin resonance spectra. The embodiment of Figs. 1 and 2 of Laukien (as referred to by the examiner) includes a "ferromagnet 1 with pole pieces carrying a copper winding 2" for producing a constant magnetic field H0 (Figs. 1 and 2(a)). This magnetic field H0 polarizes the nuclei of sample 6 contained in the air gap of the ferromagnet's poles.

RF coils 8, 9 provided in the air gap and having axes perpendicular to that of ferromagnet 1 and 2 serve to excite the nuclear species of the sample 6 to be investigated,

resulting in a 90 degree flip and free oscillations of precession of the nuclei. The RF coil frequencies f1, f0 correspond to the Larmor frequencies fν, fref of the nuclear species to be investigated, see Fig. 2 (b), (c).

An air core coil 3 is arranged such that its magnetic field is acting in the same direction as that of ferromagnet 1 and 2. Air core coil 3 is supplied with current pulses of a high current intensity after the RF-pulse and is used to generate an excited pulsed magnetic field Hp, see Fig. 2 (a). This pulsed magnetic field Hp is produced after the end of the RF excitation pulses, see Fig. 2 (a), (b). The pulsed magnetic field Hp is superimposed to the magnetic field H0 resulting in an increase of the magnetic field to H0 + Hp (but not in an increase of the polarisation). Accordingly, by the increased magnetic field the Larmor frequencies fν and fref are increased by the factor of (H0 + Hp)/H0, see Fig. 2 (d), (e). That is, the measurement signal and thus the resolution are increased.

RF coils 8, 9 are also used as coils for sensing the induction voltage and their signals are outputted for analysis.

In sharp contrast, the method and apparatus of Applicant's invention do not use different magnetic fields for polarizing the nuclei and producing the pulsed magnetic fields, nor different current supplies therefore. In Applicant's invention:

(i) Use is made of only one magnetic field B0 for polarizing the nuclei of the sample 2. This magnetic field is not constant but is provided with a time-dependent progression and amplitude progression in the form of at least one pulse. The time function of this at least one pulse is defined within a defined time window.

(ii) The RF coil 3 is supplied with a RF current pulse at time ta and produces the magnetic excitation field. That is, the RF pulse is produced during a transient magnetic field.

(iii) The RF coil 3 also is used for sensing the induction voltage. During the measurement window τ thereby the FID signal is sensed.

Furthermore, in Applicant's invention the magnetic field used for polarization is a time-dependent pulsed field. This allows the use of small coils which achieve high magnetic fields of e.g. 60 T. The measurement window τ is e.g. 10 µs

to 100 ms. The duration of the RF pulse is e.g. 0.1 μs to 10 μs.

Also, the method according to the invention uses a high magnetic field having short pulses and therefore, no static magnetic field is required. By the high magnetic field all nuclei are excited for precession oscillation. The advantage of the high magnetic field is achieving different properties of the probe material which then can be studied.

The transient magnetic field is known during said defined time window. Therefore, it is also possible to perform the measurement during said at least one pulse and this time window, respectively.

The excitation of the nuclei is made such that the MR signal is present during said defined time window.

As such, Laukien does not mention or suggest each and every limitation of claim 1, and claims dependent thereon.

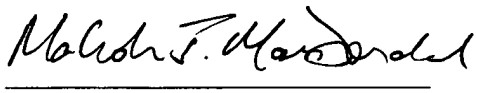
Accordingly, withdrawal of the rejection under 35 U.S.C. 102(b) is respectfully requested.

Applicants submit that the application is now in condition for allowance, and an early notice to that effect is earnestly solicited. If any issues remain that can be clarified by telephone, Examiner Arana is encouraged to

contact Applicants' Representative at the number indicated below.

Applicants hereby petition the Commissioner for Patents to extend the time for reply to the Office action dated September 27, 2007, for one (1) month from January 5, 2008, to February 5, 2008. A duly completed credit card authorization form is attached to effect payment of the extension fee.

Respectfully submitted,

By: 

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